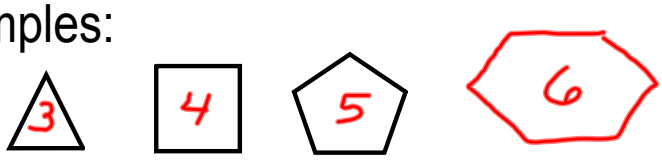
9/11 1.1 Finding and Describing Patterns

Examples:



2 , 4, 8, 16, ... 32

1, 4, 9, 16,... 25

1, 5, 9, 13, 17,... 21

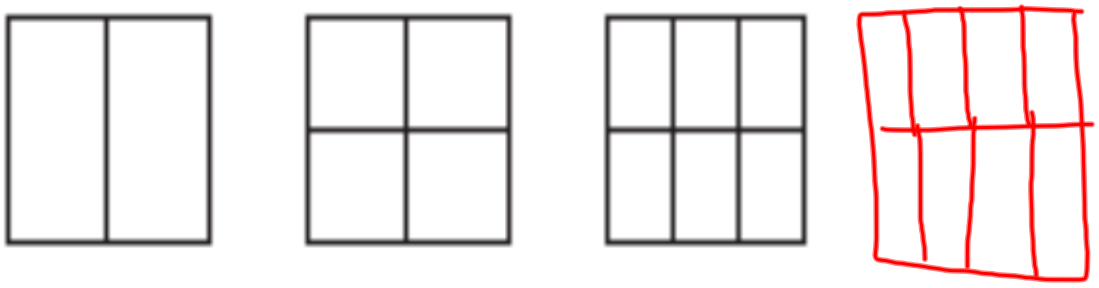
A, B, B, C, C, C,... D, D, D, D

3, 12, 48, 192

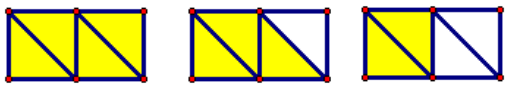
J, F, M, A,... M

Sep 7-9:20 AM

What shape is next?



What shape is next?



Sep 3-7:47 AM

Describe a pattern.

1. 

2. 

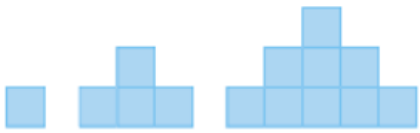
3. 4, 8, 12, 16, 20, 24, . . .

4. 35, 30, 25, 20, 15, 10, . . .

Sep 11-10:21 AM

Sketch the next two figures you expect in the pattern.

5. 

6. 

Write the next two numbers you expect in the pattern.

7. $-2, -5, -8, -11, \ldots$

8. 4, 10, 16, 22, . . .

Sep 11-10:21 AM

Sketch the next figure you expect in the pattern.

1.

3.

4.

Describe a pattern in the numbers. Write the next two numbers you expect in the pattern.

5. 3, 11, 19, 27, . . .

6. 2, 6, 18, 54, . . .

Sep 11-10:23 AM

1.2 Inductive Reasoning

Aug 22-9:46 AM

Conjecture--unproven statement based on pattern or observation

Counterexample-- an example that shows a conjecture is false

Sep 7-8:26 AM

Complete the conjecture with the word *odd or even.*

1. The sum of any three odd numbers is _____. odd

Examples: 1 + 5 + 7 = 13
3 + 5 + 9 = 17
-5 + 7 + 11 = 13

2. The difference between an integer and its opposite is _____. even

Examples: 5 - -5 = 10
-8 - 8 = -16
10 - -10 = 20
-3 - 3 = -6

Aug 22-9:50 AM

Complete with odd or even.

Complete the conjecture based on the pattern in the examples.

1. *Conjecture:* The product of any two odd numbers is __?__ odd

EXAMPLES

$1 \times 1 = 1$ $3 \times 5 = 15$ $3 \times 11 = 33$

$7 \times 9 = 63$ $11 \times 11 = 121$ $1 \times 15 = 15$

Sep 11-10:30 AM

Show the conjecture is false by providing a counterexample.

Conjecture: If the sum of two numbers is positive, then the two numbers must be positive.

Counterexample

$-1 + 3 = 2$

Sep 11-10:32 AM

Show the conjecture is false by finding a counterexample.

3. If the product of two numbers is even, the numbers must be even.

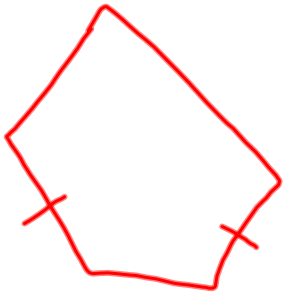
4. If a shape has two sides the same length, it must be a rectangle.

#3

$5 \times 2 = 10$

odd x even ⇒ even

#4



Sep 11-10:34 AM

Complete the conjecture with *odd* or *even*.

3. ***Conjecture:*** The difference of any two odd numbers is ___?___. even

$9 - 7 = 2$ $5 - 1 = 4$

4. ***Conjecture:*** The sum of an odd number and an even number is ___?___. odd

$3 + 4 = 7$

$5 + 2 = 7$

Aug 22-9:50 AM

Show the conjecture is false by finding a counterexample.

5. Any number divisible by 2 is divisible by 4.

6. The difference of two numbers is less than the greater number.

Sep 11-10:38 AM

Worksheet

1. 2

Aug 22-9:51 AM